IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. When strikethrough cannot easily be perceived, or when five or fewer characters are deleted, [[double brackets]] are used to show the deletion. The status of each claim is indicated with one of (original), (currently amended), (previously amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

Please AMEND claims 1, 5-7, 10-13, 15 and 19, CANCEL claims 17 and 18 without prejudice or disclaimer and ADD new claims 22 and 23 in accordance with the following:

1. (currently amended) A method comprising :

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising :

detecting chromatic dispersion related to at least ~~one of said plurality of optical signals~~two channels, and detecting dispersion slope based on said detected chromatic dispersion; and

providing a variable dispersion compensator whose chromatic dispersion and dispersion slope are controlled based on said detected chromatic dispersion and said detected dispersion slope so that said detected chromatic dispersion is reduced.

2. (previously presented) A method according to claim 1, wherein said detecting comprises :

converting at least one of said plurality of optical signals into an electrical signal; and detecting the power of a frequency component in said electrical signal corresponding to the bit rate of said at least one optical signal.

3. (previously presented) A method according to claim 1, wherein said transmitting comprises providing a linear repeating unit.

4. (previously presented) A method according to claim 3, wherein said transmitting further comprises:

detecting chromatic dispersion related to at least one of said plurality of optical signals in said linear repeating unit; and

providing a variable dispersion compensator whose chromatic dispersion and dispersion slope are controlled so that said detected chromatic dispersion in said linear repeating unit is reduced.

5. (currently amended) A method ~~according to claim 3,~~comprising:

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising:

detecting chromatic dispersion related to at least one of said plurality of optical signals, and

providing a variable dispersion compensator whose chromatic dispersion and dispersion slope are controlled so that said detected chromatic dispersion is reduced;

wherein said transmitting ~~further~~ comprises:

providing a linear repeating unit,

detecting chromatic dispersion related to at least one of said plurality of optical signals in said linear repeating unit~~;~~,

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion in said linear repeating unit is reduced~~;~~, and

providing a dispersion slope compensator for compensating dispersion slope in said linear repeating unit.

6. (currently amended) A method ~~according to claim 1~~comprising:

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising:

detecting chromatic dispersion related to at least one of said plurality of optical signals, and

providing a variable dispersion compensator whose chromatic dispersion and dispersion slope are controlled so that said detected chromatic dispersion is reduced,

wherein said generating comprises :

detecting chromatic dispersion related to at least one of said plurality of optical signals~~;~~,

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion is reduced~~;~~, and

providing a dispersion slope compensator for compensating dispersion slope.

7. (currently amended) A method comprising:

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving step comprising: ~~the steps of~~

detecting chromatic dispersion related to at least ~~one of said plurality of optical signals~~two channels, and detecting dispersion slope based on said detected chromatic dispersion~~;~~,

providing a variable dispersion compensator whose chromatic dispersion is controlled based on said detected chromatic dispersion so that said detected chromatic dispersion is reduced~~;~~, and

providing a dispersion slope compensator for compensating dispersion slope based on said detected dispersion slope.

8. (previously presented) A method according to claim 7, wherein said detecting comprises :

converting at least one of said plurality of optical signals into an electrical signal; and

detecting the power of a frequency component in said electrical signal corresponding to the bit rate of said at least one optical signal.

9. (previously presented)A method according to claim 7, wherein said transmitting comprises providing a linear repeating unit.

10. (currently amended) A method ~~according to claim 9~~comprising:

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising:

detecting chromatic dispersion related to at least one of said plurality of optical signals,

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion is reduced, and

providing a dispersion slope compensator for compensating dispersion slope,

wherein said transmitting ~~further~~ comprises :

providing a linear repeating unit

detecting chromatic dispersion related to at least one of said plurality of optical signals in said linear repeating unit; and

providing a variable dispersion compensator whose chromatic dispersion and dispersion slope are controlled so that said detected chromatic dispersion in said linear repeating unit is reduced.

11. (currently amended) A method ~~according to claim 9~~comprising:

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising:

detecting chromatic dispersion related to at least one of said plurality of optical signals,

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion is reduced, and

providing a dispersion slope compensator for compensating dispersion slope,

wherein said transmitting ~~further~~ comprises:

detecting chromatic dispersion related to at least one of said plurality of optical signals in said linear repeating unit;

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion in said linear repeating unit is reduced; and

providing a dispersion slope compensator for compensating dispersion slope in said linear repeating unit.

12. (currently amended) A method ~~according to claim 7~~comprising:

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising:

detecting chromatic dispersion related to at least one of said plurality of optical signals;

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion is reduced; and

providing a dispersion slope compensator for compensating dispersion slope,

wherein said generating comprises:

detecting chromatic dispersion related to at least one of said plurality of optical signals;

providing a variable dispersion compensator whose chromatic dispersion is controlled so that said detected chromatic dispersion is reduced; and

providing a dispersion slope compensator for compensating dispersion slope.

13. (currently amended) A system comprising:

a transmitting terminal unit for generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

an optical fiber transmission line for transmitting said WDM signal light; and

a receiving terminal unit for receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving terminal unit comprising:

a dispersion monitor for detecting chromatic dispersion related to at least ~~one of said plurality of optical signals~~two channels, and detecting dispersion slope based on said detected chromatic dispersion;

a variable dispersion compensator; and

a circuit for controlling the chromatic dispersion and dispersion slope in said variable dispersion compensator based on said detected chromatic dispersion and said detected dispersion slope so that said detected chromatic dispersion is reduced.

14. (original) A system according to claim 13, wherein said dispersion monitor comprises a converter for converting at least one of said plurality of optical signals into an electrical signal, a bandpass filter for extracting a frequency component in said electrical signal corresponding to the bit rate of said at least one optical signal, and a power sensor for detecting the power of said frequency component.

15. (currently amended) A system comprising:

a transmitting terminal unit for generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

an optical fiber transmission line for transmitting said WDM signal light; and

a receiving terminal unit for receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving terminal unit comprising:

a dispersion monitor for detecting chromatic dispersion related to at least ~~one of said plurality of optical signals~~two channels, and detecting dispersion slope based on said detected chromatic dispersion;

a variable dispersion compensator;

a circuit for controlling the chromatic dispersion in said variable dispersion compensator based on said detected chromatic dispersion so that said detected chromatic dispersion is reduced; and

a dispersion slope compensator for compensating dispersion slope based on said detected dispersion slope.

16. (original) A system according to claim 15, wherein said dispersion monitor comprises a converter for converting at least one of said plurality of optical signals into an electrical signal, a bandpass filter for extracting a frequency component in said electrical signal corresponding to the bit rate of said at least one optical signal, and a power sensor for detecting the power of said frequency component.

17. (cancelled)

18. (cancelled)

19. (currently amended) A system according to claim 13, wherein said receiving terminal unit comprises an interleaver for dividing said WDM signal into first group of optical signals and second group of optical signals,

said variable dispersion compensator~~s~~ is provided for said first ~~ground~~ group and second group; and

said circuit controls said variable dispersion compensator~~s~~ provided for the first group and the second group.

20. (previously presented) A system according to claim 13, wherein said transmitting terminal unit comprises an interleaver for dividing said a plurality of optical signals into first group of optical signals and second group of optical signals; first variable dispersion compensator for compensating chromatic dispersion for optical signals of said first group ; and second variable dispersion compensator for compensating chromatic dispersion for optical signals of said second group.

21. (previously presented) A system according to claim 15, wherein said receiving terminal unit comprises a polarization mode dispersion compensator provided for said each optical signal.

22. (new) A method comprising :

generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

transmitting said WDM signal light by an optical fiber transmission line; and

receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving comprising:

detecting chromatic dispersion related to at least one of said plurality of optical signals during an operation of a system,

providing a variable dispersion compensator whose chromatic dispersion is controlled adaptively based on said detected chromatic dispersion during said operation of said system so that said detected chromatic dispersion is reduced, and

providing a dispersion slope compensator for compensating dispersion slope.

23. (new) A system comprising:

a transmitting terminal unit for generating WDM signal light by wavelength division multiplexing a plurality of optical signals having different wavelengths;

an optical fiber transmission line for transmitting said WDM signal light; and

a receiving terminal unit for receiving said WDM signal light transmitted by said optical fiber transmission line;

said receiving terminal unit comprising:

a dispersion monitor for detecting chromatic dispersion related to at least one of said plurality of optical signals during an operation of a system;

a variable dispersion compensator;

a circuit for controlling the chromatic dispersion in said dispersion compensator adaptively during said operation of said system based on said detected chromatic dispersion so that said detected chromatic dispersion is reduced; and

a dispersion slope compensator for compensating dispersion slope.